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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/25/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/081,844

Applicant(s)

OKADO ET AL.

Examiner

Christopher D RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 25-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 15-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-24, drawn to a replenishing developer, classified in class 430, subclass 111.35.
- II. Claims 25-27, drawn to a developing method, classified in class 430, subclass 120.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in another and materially different process such as cascading the developer across a dielectric surface having a uniformly charged surface so that the developer uniformly coats the surface with toner followed by fixing the toner to the dielectric surface.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Peter Saxon on 17 March 2002 a provisional election was made with traverse to prosecute the invention of group I, claims 1-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-27 are

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23 and 24 are indefinite because it is unclear how the "use" limits the replenishing developer in the base claim. It appears that the developer is completely described in the base claim based on the components recited and their amounts. The intended use of the developer in these claims is not seen as providing any further limitation to the base claim as required by 37 CFR 1.75(c). Clarification is requested. If the limitations is intended to define the capability of the developer then the claims should be amended to specify to clearly set for this limitation in this manner.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-14 and 19-24 are rejected under 35 U.S.C. 103(a) as being obvious over Sakemi in US Patent 6,418,291 in view of Yoshizaki *et al.* in US Patent 6,372,400.

The applied Sakemi and Yoshizaki references have a common assignee with the instant application. Based upon the earlier effective U.S. filing date of each reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the references and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Sakemi discloses a replenishing developer having a toner to carrier ratio of about 9:1 based on weight (col. 5, l. 29-48). This replenishing developer is used to replenish an electrostatic latent image developer having a mixture of non-magnetic toner and magnetic carrier when the toner concentration becomes low (col. 4, l. 13-16). It appears that the replenishing developer also comprises a non-magnetic toner and magnetic carrier because it is designed to replace the initial developer consumed during copying. Sakemi does not specify the composition of the toner or the carrier.

Yoshizaki discloses an electrostatic latent image developer having a carrier composed of a binder resin with magnetic fine particles dispersed therein and a toner. Carrier Production Example 1 (col. 30, l. 25) shows a carrier with a thermosetting phenol resin binder and dispersed therein fine ferrite and magnetite particles that have been treated with a silane lipophilic agent. The carrier particles are then treated with a silicone resin to form a coating resin layer over the base particles. As seen in Table 2, the carrier has a particle diameter of 35  $\mu\text{m}$  and a magnetization intensity of 35  $\text{Am}^2/\text{kg}$  at  $1000/4\pi$  (also note col. 9, l. 31-60). The other carrier production methods are similarly applicable to the instant claims. The carrier particles in the instant specification have substantial similarity in materials and characteristics (see spec. p. 97 and compare with reference Carrier Production Example 1). Given these similarities there is sufficient reason to believe that the reference carrier particles inherently have the claimed specific gravity, residual magnetization and flowability as specified in dependent claims 7-13. Yoshizaki also teaches that magnetite particles in the carrier can have metals such as Zn, Cu, Ni, Co, Al, Sn, Ti, Zr, Mg, Si, and Mn as part of the metal M in the formula  $\text{MFe}_2\text{O}_4$  (col. 9, l. 61 – col. 10, l. 11). The carrier particles of the invention are polymerized in a liquid medium where the monomers and magnetic particles are dispersed (col. 12, l. 30-41 & Examples).

The toner in Yoshizaki's Toner Production Example 1 is prepared from a mixture of a polyester binder resin, a colorant, a charge control agent, and 5 parts of polypropylene wax (4.3 wt. %). Toner Production Example 6 produces a toner by polymerization of vinyl monomers with a colorant, a charge control agent, and an ester wax (17.8 wt. %). The toners have particle sizes of from 3-10  $\mu\text{m}$  (col. 15, l. 59 & Table 3).

The mixture of toner and carrier are placed in a development device as seen in Figure 1. This device specifically has a replenishing toner **18** in a corresponding device **R3**.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the developer of Yoshizaki in the invention of Sakemi where the initial developer and replenishing developer are as specified by Yoshizaki because Sakemi desired a developer that will function in a system where the developer is replenished and Yoshizaki discloses a developer that is used in a system where replenishing developer is provided. Because both references contemplate the use of magnetic carrier and non-magnetic toner the references are clearly concerned with similar development systems. Based on this substitution the replenishing developer would have the composition of Yoshizaki but the proportions disclosed by Sakemi. The toner suggested by the combination of references appears to be capable of functioning so that it is supplied in response to a toner consumption being detected because the primary reference suggests adding a replenishing toner to a development container of a developing device (claims 23 and 24).

Claims 1-14 and 19-24 are rejected under 35 U.S.C. 103(a) as being obvious over Klimley in US Patent 6,353,722 in view of Yoshizaki *et al.* in US Patent 6,372,400.

The applied Yoshizaki reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and

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that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Klimley discloses a printing machine that uses a magnetic roller **26** in a non-magnetic sleeve **24** to transport developer to a development station C (col. 3, l. 40 – col. 4, l. 32). After development the waste toner is moved to a waste container **4**. Through use, the developer ages and must be replenished so that the developer has a useful life as long as the life of the photoconductive surface (col. 4, l. 33-45). A discharging unit **30** in Figure 1 has a replenishing developer stored in hopper **32** to reconstitute the developer used in the development process. The replenishing developer has a composition of 25 weight % carrier particle and 75 weight % toner while the initial developer has 96 weight % carrier and 4 weight % toner (col. 4, l. 46-65). The developer composition is not specified by the reference.

Yoshizaki is described above and is pertinent to this rejection.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the developer of Yoshizaki as the developer in Klimley because Yoshizaki's magnetic developer is specifically disclosed as useful in development processes where the developer is replenished and Klimley desires a magnetic developer which can replenish an initial developer. Because the references are concerned with similar systems (i.e., magnetic developer and replenishing developer systems the artisan would recognize nexus between the references and find it obvious to make the substitution proposed. In this combination the replenishing developer in Klimley would have the composition of Yoshizaki and



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the amounts disclosed by Klimley. The toner suggested by the combination of references appears to be capable of functioning so that it is supplied in response to a toner consumption being detected because the primary reference suggests adding a replenishing toner to a development container of a developing device (claims 23 and 24).

Claims 1-4, 6-14, and 19-24 are rejected under 35 U.S.C. 103(a) as being obvious over Klimley in US Patent 6,353,722 in view of Mikuriya *et al.* in US Patent 6,124,067.

Klimley was described above. The reference does not disclose the composition of the developer.

Mikuriya discloses a two component developer having a magnetic carrier and a toner. As seen in Example 1 (col. 37, l. 20) the carrier has a phenolic resin with fine lipophilic-treated magnetic particles dispersed therein (compare with col. 13, l. 12-23) to form core particles. The magnetic carrier core particles are then treated with a silane coupling agent and then coated with a graft copolymer (col. 8, l. 49 – col. 9, l. 58). The produced carrier of this example has a  $\sigma_{1000}$  of 42 Am<sup>2</sup>/kg, a  $\sigma_r$  of 3.2 Am<sup>2</sup>/kg, a diameter of 34  $\mu$ m, and a true specific gravity of 2.7 (also see col. 12, l. 9-15). Note the similarity of this example with Magnetic Carrier A-1 on specification page 97. The magnetic particles dispersed in the core binder resin include those with metals such as Zn, Cu, Ni, Co, Al, Sn, Ti, Zr, Mg, Si, and Mn as part of the metal M in the formula MFe<sub>2</sub>O<sub>4</sub> (col. 12, l. 39-68). The lipophilic treatment can be with a titanate or a silane coupling agent (col. 13, l. 12-23). The production process of the example is particularly pertinent to dependent claim 21.

Mikuriya's toner combined with the carrier has a binder resin, a colorant, a charge control agent, and a wax (col. 13, l. 55 – col. 19, l. 28). The toner has a weight-average particle size of from 3 to 9.9  $\mu$ m and contains the wax in an amount of from 1 to 40 wt. parts per 100

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parts of the toner binder resin (col. 18, l. 14-15; col. 43, l. 26+). See Toner Production Example 1 where a toner having the formulation with the wax is produced by a polymerization process (also see col. 21, l. 44+).

The mixture of toner and carrier are placed in a development device as seen in Figure 1. This device specifically has a replenishing toner **18** in a corresponding device **R3** to replenish the developer as it is used in the process (col. 27, l. 55-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the developer of Mikuriya in the invention of Sakemi where the initial developer and replenishing developer are as specified by Mikuriya because Sakemi desired a developer that will function in a system where the developer is replenished and Mikuriya discloses a developer that is used in a system where replenishing developer is provided. Because both references contemplate the use of magnetic carrier and non-magnetic toner the references are clearly concerned with similar development systems. Based on this substitution the replenishing developer would have the composition of Mikuriya but the proportions disclosed by Sakemi. The toner suggested by the combination of references appears to be capable of functioning so that it is supplied in response to a toner consumption being detected because the primary reference suggests adding a replenishing toner to a development container of a developing device (claims 23 and 24).

#### ***Allowable Subject Matter***

Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

The following references are cited of interest.

Budny in US Patent 6,542,708 discloses a replenishing developer having a toner and a carrier comprising a carrier core of a material such as zircon, silicon, glass, steel, or ferrites (col. 4, l. 64 - col. 5, l. 11). The core is typically about 5 to 200 microns in diameter and may be coated with a resin (col. 5, l. 12-27; col. 10, l. 51-58) as well as zinc stearate (col. 9, l. 56 - col. 10, l. 27). Budny contemplates a replenishment system for the developer where the ratio of toner to carrier about 2-6 : 1 (col. 9, l. 35-5). Budny does not disclose a carrier having magnetic fine particles dispersed in a binder resin and does not suggest the ratio of toner to carrier for a carrier having a core as described would be effective for a carrier as claimed.

Imai also discloses a carrier with a magnetic core particle covered with a resin rather than a carrier having magnetic fine particles dispersed in a binder resin.

Folkins *et al.* in US Patent 4,614,165 is cited for its disclosure of replenishing systems.

Baba in US Patent 6,010,811 discloses a magnetic developer having a carrier formed of a phenolic resin with magnetic particles dispersed therein (Example 1). The carrier is coated with a silicone resin to obtain a carrier with a size of 34  $\mu\text{m}$ . The reference discloses the use of a wax in the toner but does not specify the amount of wax or the use of the developer in a replenishment system.

Hakata in US Patent 6,017,667 discloses spherical carrier particles having magnetic particles dispersed in a phenolic binder resin but the composition of a toner for use with the carrier is not disclosed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.



**CHRISTOPHER RODEE  
PRIMARY EXAMINER**

cdr  
April 15, 2003